Managing the Company's Digital Capability: A Case for Operational Excellence

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Abstract

The framework for assessing the company's digital capability includes six key areas that can be individually evaluated to consider the overall maturity of a company's digital capability. According to this framework key areas are innovation capability, transformation capability and IT excellence as digital transformation enablers and customer centricity, effective knowledge worker and operational excellence as digital transformation goals. The focus of this research is the area of operational excellence. The purpose of the paper is to assess how the manufacturing company manages the digital transformation of the operational excellence. In the paper, the digital capability maturity model (DCMM) and its corresponding business transformation management methodology (BTM^2) are used for this assessment. The BTM2 includes nine management disciplines and each of them is individually evaluated for the case of the operational excellence. These are the following disciplines: strategy management, value management, risk management, business process management, IT management, change management, training management, project management and meta management. According to the obtained assessment results the maturity of management disciplines for the case of operational excellence within the examined company is mostly reactive (maturity level 2). In order to improve the digital transformation of the company's operational excellence, it is necessary to define digital use cases based on the new technologies and map them to the existing maturity model of operational excellence of the company. It is necessary to consider the requirements of stakeholders regarding the benefits and risks of new digital technologies to improve the operational excellence of the company. Accordingly, the company should to define a new strategic plan and align it with the new IT strategy. For this purpose, COBIT 5 framework is used in the paper. The contribution of this research is in the proposed and described three-step approach to managing the operational excellence of companies and improving the level of digital capabilities of companies.

Keywords: operational excellence, DCMM, BTM^2, COBIT 5, the proposed approach to manage the company's digital capability

1. Introduction

Managing the company's digital capability is a complex process based on the implementation of digital strategies, on improving the user experience and continuously raising the level of maturity of the company's digital capabilities [1].

Information technology (IT) is changing its role. IT becomes a strategic partner for business and influences the development of new products and services, the competitiveness of companies [2], [3]. There is a lot of research in the literature on how to manage a company's digital capability. Accordingly, various models and approaches are being developed.

1.1. Research focus

The research aims to assess the maturity of operational excellence in a manufacturing company using the digital capability maturity model (DCMM) and its corresponding business transformation management methodology (BTM^2) (the case study from Croatian business practice). The existing maturity of operational excellence within the company is obtained by evaluating each of the 9 aspects of management according to the BTM^2 (as-is situation of the company). The scope of the research with regard to the assessment of operational excellence included the core business process of the manufacturing company (purchasing, warehousing, production, distribution and support).

The research results give managers the opportunity to identify the existing gaps in the operational excellence and to initiate improvements by defining the new strategic plans and investment policies in the application of digital technologies (to-be situation of the company).

1.2. Research methodology

For the purposes of the research, the following methodology was applied:
- Digital Capability Maturity Model (DCMM) includes six areas for assessing the company's digital capabilities: *innovation capability, transformation capability and IT excellence* as drivers of digital transformation and *customer centricity, effective knowledge worker and operational excellence* as goals of digital transformation;
- Business Transformation Management Methodology (BTM^2) includes nine aspects of management: *strategy management, value management, risk management, business process management, IT management, change management, training management, project management and meta management*; each of the 9 management disciplines of the BTM^2 contains 3 key areas that should be evaluated (part of the DCMM model);
- Measurement framework includes five maturity levels (1-5) (part of the DCMM model);
- COBIT 5 framework,principle 1 for creating and alignment of business and IT strategy;
- structured interviews with the responsible managers of the business and IT departments.

1.3. Structure of the paper

Regarding the structure of the paper, the general framework for assessing the company's digital capabilities is described in Chapter 2. Digital capability maturity model (DCMM) is described in Chapter 3.

The results of the research related to the assessment of the company's operational excellence using the DCMM are described in Chapter 4.

The proposed three-step approach to manage the operational excellence of the company and improve the level of the company's digital capability is described in Chapter 5. The proposed approach is based on the research results related to the assessment of the digital capability of a manufacturing company and the case of operational excellence. However, the proposed approach can help managers for other case studies in the process of company's digital transformation (case studies such an: innovation capability, transformational capability, IT excellence, customer orientation, effective employees). Concluding remarks are related to the evaluation of the proposed approach to manage the company's digital capability and future research.

1.4. Problem definition

The manufacturing company should assess the existing maturity of operational excellence as one of the key areas of digital capabilities. For this purpose, as mentioned before, the company uses the BTM^2 as part of DCMM.

The BTM^2 contains 9 key management disciplines that are separately evaluated for the purpose of providing guidelines and support for the implementation of transformation projects. Strategy management, value management and risk management are *direction management disciplines* [4]. Business process management, IT management, change management, training management and project management are *enablement management disciplines* [4].

Meta management supports managing the business transformation and aligns all individual management disciplines [4].

In the literature, a large number of problems related to the implementation of the BTM^2 are analyzed for different case studies. It has been identified that a large number of companies are not ready to implement transformation projects [5].

On the other hand, the advantages of this methodology are in the guidance and coordination of managers for the successful implementation of digital business transformation. What's more, managers can assess the existing maturity of digital transformation within their company and suggest the improvements. Accordingly, managers can define the new strategic plans.

This research proposes the three-step approach that will help managers improve the existing company's digital capability and realize the desired digital capability. The proposed three-step approach will be described for the case of the manufacturing company and the maturity results of its operational excellence. The success of the new strategic plans and the implementation of transformation projects in the manufacturing company were not examined in this research. This is the goal of the future research (step 4 of the proposed approach).

2.   Framework for assessing the company's digital capabilities

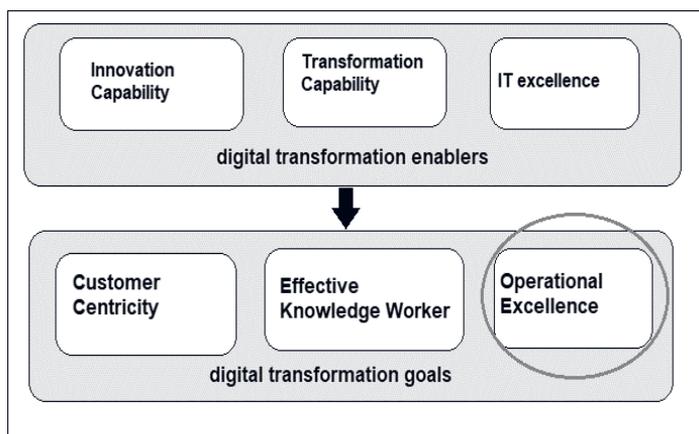The framework for assessing the company's digital capabilities is shown in Fig. 1[6].

Figure 1. Framework for assessing the company's digital capabilities

This framework includes six key areas of digital capabilities that can be individually evaluated to consider the overall maturity of a company's digital capabilities. Digital transformation enablers are innovation capability, transformation capability and IT excellence. Digital transformation goals include customer centricity, effective knowledge worker and operational excellence. The focus of this research is the area of operational excellence. The features of these 6 areas of digital capabilities are described below [6].

Innovation capability: the capability of a company to transform ideas into new and profitable products and services using digital technologies for better competitiveness. Accordingly, it is necessary to continuously analyze stakeholder requirements regarding the business value of new digital technologies, evaluate potential risks and costs, and map requirements with the company's strategic plans. Innovation capability is a factor that can affect operational excellence as well as customers and employees.

Transformation capability: this area of digital capability enables companies to manage complex changes that need to be evaluated in terms of implementation, required resources and potential risks. The capability to transform means that companies have a vision and plans to implement such a transformation as well as an adequate methodology for managing digital changes. Company management must support the business transformation, and employees must be aware of how important it is for the company's competitiveness.

IT Excellence: this area of digital capability determines whether companies can manage their technological potential and how they use this potential to create greater business value. Any investment in new technologies should be evaluated both in terms of benefits and in terms of costs and risks. It is important that business management has a vision of how to use the potential of digital technology.

All stakeholders should be included in the analysis of the business value of new digital technologies, and their requirements initiate the development of new strategic plans and new IT strategies. It is very important to achieve integration of business processes using digital technologies as well as adequate delivery and support of IT services in accordance with the business requirements. This contributes to the customer satisfaction and the company's financial success.

Customer centricity: one of the digital transformation goals by which companies strive to achieve a better relationship with the customers and a larger market share based on the quality products and services. The application of digital technologies enables new ways of cooperating with customers, and the entire business is focused on their needs and expectations. Companies collect data about the needs and preferences of their customers, and then use it to personalize offers and provide services with the aim of a better customer experience.

Effective knowledge worker: one of the digital transformation goals that companies want to achieve by focusing on their employees, culture, talent, skills and leadership. Companies require new competencies and skills to use digital technology and increase the satisfaction of their employees. Jobs in digital business are designed to encourage creativity and cooperation among employees. Establishing a collaborative and creative work environment allows employees to become more loyal, independent and self-confident. Changes that are important for the company relate to the development of culture, gradual adaptation of employees to work with new technologies. Leadership and its support are very important during the digital transformation process.

Operational excellence: one of the goals of digital transformation and the company's capability to adequately manage business processes by applying new digital technologies. IT is changing its role and becoming a strategic business partner. Accordingly, it is important to continuously improve the operational excellence, identify stakeholder requirements regarding the business value of key digital technologies (mobile connectivity, IoT, big data, cloud computing, social media) that will be integrated into the business processes. The features of key digital technologies for the operational excellence are described below.

Social media use interactive platforms based on Internet technologies that allow users new ways of communication and collaboration. Many companies involve their customers in the process of developing new products and/or services [7]. Companies should analyze the benefits of new technologies and try to map them with the selected business processes in order to improve the operational excellence [8]. There are maturity models that help companies assess the state and agility of their current processes and improve their digital business.

Big data gives companies a clearer understanding of their consumers' expectations and needs in order to offer them specific products or services. This is based on the large amount of data that is collected and analyzed every day [9]. Big data is "a term used to denote an increase in the volume of data that is difficult to store, process and analyze through traditional database technologies. The nature of big data is fuzzy and involves significant processes to identify and translate data into new insights" [10]. In

this sense, big data is "a set of data whose size exceeds the ability of typical database software tools to capture, store, manage and analyze" [11].

Mobile technologies make it possible to achieve the goals of digital transformation and offer transparent interaction with the customers. The current state of technology integration and the use of mobile devices in the business is based on the business needs and is aimed at managing the business processes as efficiently as possible [12].

Cloud computing can be defined as "the application and use of IT products and services that are provided and maintained over a network" [13]. It also enables employees to work, providing them with real-time access to information and facilitating efficient use of resources.

The maturity of operational excellence also affects other business perspectives within the company. These are the customer's perspective (greater customer satisfaction) and the financial perspective (financial success and greater competitiveness of the company).

3. Digital Capability Maturity Model (DCMM)

In this chapter, the structure of the digital capability maturity model (DCMM) is described. The DCMM model is shown in Fig. 2.
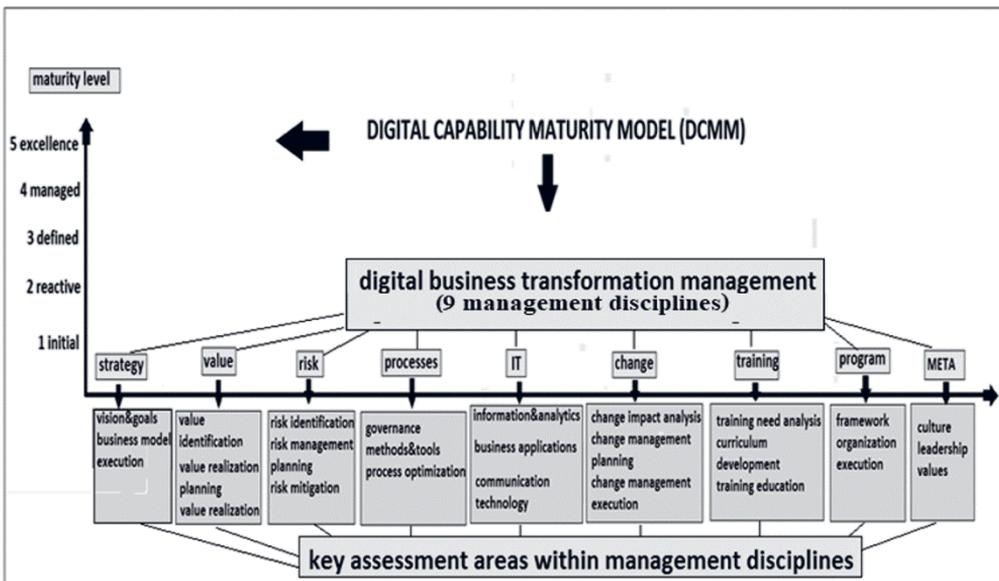

Figure 2. Structure of the DCMM model

The DCMM model contains two dimensions: one dimension refers to the corresponding business transformation management methodology (BTM^2). The BTM^2 is developed by the Thought Leadership Network based on different case studies [14]. The BTM^2 contains 9 management disciplines. Each of the management

disciplines contains 3 key areas that are evaluated in order to obtain the overall maturity of the company's digital capability.

Each capability area (shown in Fig.1) can be separately assessed using the BTM^2. The assessed maturity of all 6 digital capability areas represents the overall digital capability of the company. The individual management disciplines are described below.

Strategy management defines the goals of digital business transformation and aligns them with the business goals of the company. Goals should be related to all business processes. All stakeholders should be involved in such processes [15]. Value management should identify the business values of digital transformation and plan their implementation. Risk management should identify key risks associated with digital business transformation projects and determine controls to reduce unacceptable risks. These three management disciplines are the direction management disciplines [4].

Other management disciplines are the enablement management disciplines [4]. Organizational change management should approve new changes in accordance with the stakeholder requirements and monitor their implementation.

Business process management should optimize the business processes by establishing digital transformation projects.

IT management evaluates existing IT performance within the company and makes decisions about the changes based on the new technologies.

Training management should conduct appropriate training and develop programs to support the digital transformation process.

Project management should plan and manage digital transformation projects including objectives such as quality, time and cost.

Meta management supports managing the business transformation and aligns all individual management disciplines. Meta management assesses the company's awareness of the importance and need for digital transformation and assesses management support in the implementation of digital transformation projects.

The second dimension of the DCMM model is a measurement framework that contains 5 levels of maturity. The individual maturity levels are described below. Level 1 (initial) is the lowest level of maturity at which digital transformation projects are not implemented or are implemented up to some 20%. Digital capability is not recognized. Level 2 (reactive) is the level at which the projects are partially implemented in an intuitive way (up to 40%). The goals of digital transformation are partially integrated into the vision of the company. Digital transformation projects are implemented intuitively. Business integration is very low. Level 3 (defined) is the level of maturity at which the digital transformation projects are defined and documented (up to 60%). A digital transformation strategy is defined and the values and risks of digital transformation are assessed. Level 4 (managed): digital transformation projects are managed quantitatively in order to predict (digital) product quality (up to 80%). Digital transformation projects are monitored and improved at level 5 (excellence), (up to 100%).

Maturity models are a valuable tool for IT managers because they enable the assessment of the existing state of the company as well as the identification of necessary improvements [16], [17].

4. Assessment of the company's operational excellence using DCMM: research results

The assessment of the company's operational excellence is conducted in the research using the DCMM model. The structure of the DCMM model is two-dimensional (shown in Fig.2). One dimension refers to the BTM^2 and 9 management disciplines whose maturity is evaluated for the case of operational excellence within the manufacturing company.

The aim of the research is to obtain results about the maturity of the management of operational excellence within the manufacturing company. The assessment of the existing operational excellence maturity within the production company is conducted on the following core business processes: purchasing, warehousing, production, distribution and support.

The second dimension of the DCMM model is the measurement framework consisting of maturity levels from 1 to 5 (shown in Fig. 2).

4.1. Assessment procedure for the operational excellence

Each of the nine management disciplines according to the BTM^2 contains three key areas. The research questions are defined for each of the three key areas. The possible answers to each research question are defined according to maturity levels (1-5). According to the provided answers, respondents choose the answer that best corresponds to the existing practice of operational excellence within their company. The assessment results for the strategy management are shown in detail in Fig. 3.

For example, the answer to the first question " *What percentage of the corporate strategy focuses on operational excellence?* (key area: VISION & GOALS) corresponds to the maturity level 2 (reactive) and it is based on the assessment of the respondents (Fig.3).

Due to the scope of the paper, it is not possible to show in detail the respondents' answers for each management discipline of the BTM^2. Summary assessment results of each management discipline for the case of operational excellence are shown in the Fig.4 and Fig.5.

Figure 4 shows the assessment results of the management disciplines that have the strategic importance for the operational excellence in the company – direction disciplines (*strategy management, value management and risk management*). Figure 5 shows the assessment results of the enablement disciplines (*business process management, IT management, change management, training management, project management*).

Meta management is the basis of the BTM^2 and has the purpose of harmonizing all individual disciplines (direction and enablement disciplines). Meta management is

the main support in the management of the business transformation. The assessment results for meta management are also shown in Fig. 5.

Kea areas for Strategy Management/ Research Questions	MATURITY LEVEL				
	INITIAL 1 (0-20%)	REACTIVE 2 (21-40%)	DEFINED 3 (41-60%)	MANAGED 4 (61-80%)	EXCELLENCE 5 (81-100%)
VISION & GOALS What percentage of the corporate strategy focuses on operational excellence?	Operational excellence is not included in the company's vision and strategy.	Operational excellence is partially included in the company's vision and strategy.	Operational excellence is mostly included in the company's vision and strategy.	Operational excellence is included in the company's vision and strategy.	Corporate strategy focused on operational ecellence
BUSINESS MODELS In what percentage is operational excellence related to the company's business processes?	Operational excellence is not related to the company's business processes and tehir changes.	Operational excellence is partially related to the company's business processes and tehir changes.	Operational excellence is mostly related to the company's business processes and tehir changes.	Operational excellence is related to the company's business processes and tehir changes.	Operational excellence is fully related to the company's business processes and tehir changes.
EXECUTION What percentage of operational excellence projects are implemented?	Operational excellence projects are not executed.	Operational excellence projects are partially executed.	Operational excellence projects are mostly executed.	Operational excellence projects are executed.	Operational excellence projects are executed. There is strong executive management support and integrated strategy communication.
Average maturity level of strategy management for operational excellence: reactive (2)					

Figure 3. Maturity of the strategy management for the case of operational excellence

Operational Excellence Maturity Model (as-is situation)

DIRECTION DISCIPLINES		
Strategy Management (Reactive 2)	**Value Management Reactive (2)**	**Risk Management Reactive (2)**
VISION & GOALS What percentage of the corporate strategy focuses on operational excellence?	**VALUE IDENTIFICATION** What percentage do you assess the benefits of operational excellence?	**RISK IDENTIFICATION** Do you identify risks related to the company's operational excellence?
BUSINESS MODELS In what percentage is operational excellence related to the company's business processes?	**VALUE REALIZATION PLANNING** In what percentage and how do you organize and plan the realization of the operational excellence benefits?	**RISK MANAGEMENT PLANNING** Are you planning to manage the risks associated with the company's operational excellence?
EXECUTION What percentage of operational excellence projects are implemented?	**VALUE REALIZATION** What percentage of the operational excellence benefits are realized?	**RISK MITIGATION** Are you implementing measures to reduce the risk to an acceptable level?

Maturity Levels: | Initial | Reactive | Defined | Managed | Excellence

Figure 4. Maturity of the direction disciplines for the case of operational excellence

The research results show a rather low maturity level (reactive) of the direction disciplines for the case of operational excellence (Fig.4). The operational excellence in the examined company is partially recognized as a digital capability that should be continuously improved. Goals for improving operational excellence are partially integrated in the vision/strategy of the company.

Furthermore, the benefits of operational excellence based on the using of digital technologies are very poorly identified in the company. There are no plans to realize these benefits. Digital transformation projects are executed mostly intuitively.

According to the obtained assessment results, risks related to operational excellence are poorly identified. Adequate risk management methods are not used in the company.

Operational Excellence Maturity Model (as-is situation)

	Business Process Management (Reactive 2)	IT Management (Reactive 2)	Change Management (Reactive 2)	Training Management (Defined 3)	Project Management (Reactive 2)	Alignment of individual disciplines — Meta Management (Reactive 2)
ENABLEMENT DISCIPLINES	GOVERNANCE In what percentage is the strategic level of business process management achieved?	INFORMATION ANALYTICS What percentage do you use data analytics for the business process improvement?	CHANGE IMPACT ANALYSIS To what extent do you conduct an analysis of the impact of changes on the business?	TRAINING NEEDS ANALYSIS Do you conduct an analysis of the competencies and required transformation skills?	FRAMEWORK Do you apply methods and tools for the operational excelence project management?	CULTURE What is the level of awareness regarding operational excellence improvement needs?
	METHODS & TOOLS In what percentage do you use methods, standards, tools for business process management?	BUSINESS APPLICATIONS What percentage of applications and services are integrated into business processes?	CHANGE MANAGEMENT PLANNING Do you implement change management planning?	CURRICULUM DEVELOPMENT Are you developing adequate training programs required for operational excellence?	ORGANIZATION Do you integrate projects into an overall strategic roadmap towards operational excellence?	LEADERSHIP Does the company leadership support the implementation of operational excellence projects?
	PROCESS OPTIMIZATION To what extent do you monitor the efficiency of the process for the purpose of optimization?	COMMUNICATION TECHNOLOGY What percentage of communication technologies enable integration of the business processes?	CHANGE MANAGEMENT EXECUTION To what extent is change management implemented?	TRAINING EDUCATION Are the necessary trainings conducted within the company?	EXECUTION 3.What percentage of operational excellence projects are performed?	VALUES Are the values of digital business transformation assessed within the company?

Maturity Levels: Initial | Reactive | Defined | Managed | Excellence

Figure 5. Maturity of the enablement disciplines and meta management for the case of operational excellence

The maturity of the enablement management disciplines for the case of the operational excellence within the examined company is also very low, maturity level is 2 (reactive) (shown in Fig.5). The business processes management generally has a low maturity rating: *there is no defined strategic plan; adequate methods/tools for the business process management are not used; execution of the process is partially monitored and measured; process optimization is poorly implemented.*

IT management has a very low level of maturity within the examined company. The company does not analyze the potential of modern digital technologies for the integration of such technologies into the business processes. The business processes are not integrated.

Change management is also ranked low. The business changes are partially analyzed and approved in an intuitive way.

The management of employee competencies for the case of operational excellence has an estimated maturity level 3 (defined). The company analyzes competencies and plans the education for the purpose of acquiring skills needed for digital transformation and operational excellence.

Project management within the company is ranked low. The company does not apply adequate project management methods for the case of operational excellence. Projects are poorly implemented.

Meta management also has a low level of maturity like most management disciplines (reactive). Employees are not aware of the need to continuously improve the operational excellence and integrate digital technologies into the business processes. The company's leadership partially supports the operational excellence projects.

The described assessment results initiate the need to improve direction disciplines for the case of operational excellence within the examined company (*strategy management, value management and risk management*). It is necessary to apply adequate methods/frameworks of strategic planning within the company. It is necessary to consider the requirements of stakeholders regarding the benefits and risks of new digital technologies to improve the operational excellence of the company.

The assessment results show that enablement disciplines (*business process management, IT management, change management, training management, project management)* should be also improved. Meta management that coordinates *direction and enablement management disciplines* should also be improved.

In the next chapter, the author describes the three-step approach that will help managers improve the existing company's digital capability and realize the desired digital capability. The proposed three-step approach will be described for the case of the examined company and the estimated maturity results of its operational excellence.

5. Managing the company's digital capability: the case for operational excellence

In this chapter, author describes the three-step approach to improve the existing digital

capability of the company and achieve the target digital capability. The steps are described and related to the case of the examined manufacturing company and its estimated operational excellence. The following core business processes within the company are examined: *purchasing, warehousing, production, distribution, support*. The steps are described in the following text. The purpose of the applied model/approach is described for each step.

STEP 1: digital capability assessment of the company's operational excellence

Applied model: Operational Excellence Maturity Model (part of the DCMM model). **Purpose of the applied model:** to conduct digital capability assessment for the case of operational excellence within the manufacturing company and analyze the existing results. The procedure of conducting the assessment and the obtained summary results are described in the Chapter 4.

Operational excellence maturity model is shown in Fig. 6. The radar diagram shows the existing maturity levels for each management discipline for the case of operational excellence within the manufacturing company (as-is situation). According to the obtained results the maturity of the management disciplines for the case of operational excellence is mostly reactive (maturity level is 2).

Figure 6. Operational Excellence Maturity Model (as-is situation)

STEP 2: developing digital use cases and mapping to the existing operational excellence maturity model of the company

Applied approach: defining digital use cases based on the new technologies and mapping them to the existing operational excellence maturity model (core business processes).

Purpose of the applied approach: to analyze the benefits of key digital technologies and map them to the existing operational excellence maturity model of the manufacturing company. It is necessary to consider the requirements of stakeholders regarding the benefits and risks of new digital technologies to improve the operational excellence of the company. Digital use cases based on the new technologies and their mapping to the existing operational excellence maturity model are shown in Fig. 7.
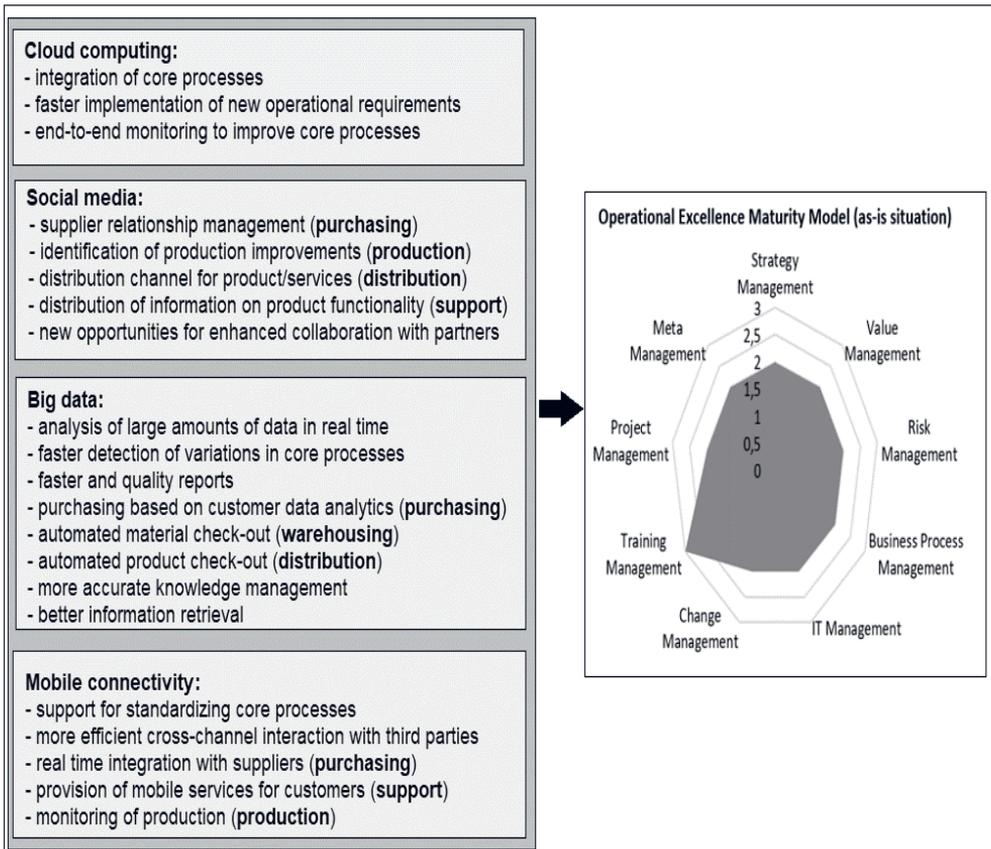

Figure 7. Digital use cases and mapping to the existing operational excellence maturity model (to-be situation)

STEP 3: strategic planning and alignment with the new IT strategy of the company

Applied framework: COBIT 5 principle 1: Meeting Stakeholder Needs
    Purpose of the applied framework: to create the new business strategy of the examined company and to align the business strategy with the IT strategy.
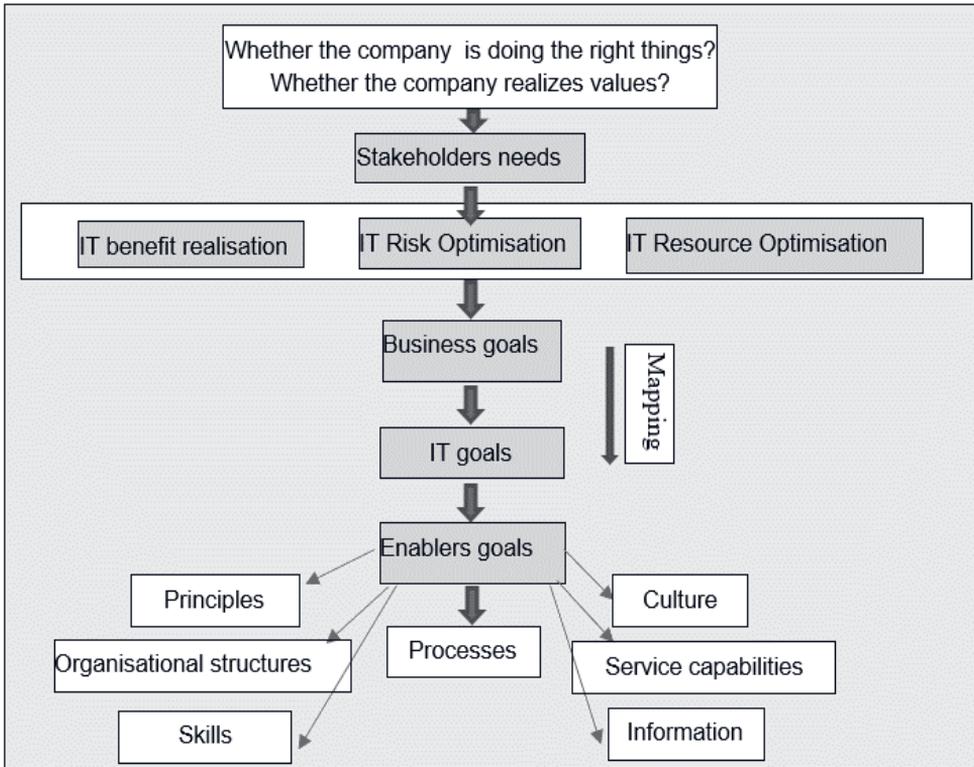The concept of the COBIT 5 -principle 1 is shown in Fig. 8.

Figure 8. COBIT 5 principle 1 [18]

In general, COBIT 5 framework offers a lot of tools for IT management: alignment the business strategy and IT strategy using Balanced Scorecard method (BSC), RACI matrix, maturity models, control objectives, process goals and metrics [19]. The COBIT 5 framework offers a generic model for creating a business strategy in any company according to the BSC method (*financial, customers, processes, learning and growth*). Accordingly, COBIT 5 defines 17 strategic goals that the company can select and adapt to its business practice.

The development of the company's strategic plan is based on the collected requirements of stakeholders related to the benefits and possible business contributions of new technologies with optimal risks and costs.

Furthermore, the strategic business goals are connected and aligned with the IT strategy, which is also based on the BSC method. COBIT 5 defines 17 IT goals that the company can also select and align with its business goals. COBIT 5 describes further cascading goals towards IT processes, which is not the focus of this research.

In the following text, it will be described how the manufacturing company creates its new strategic plan with regard to the results from step 2 using COBIT 5 principle 1.

According to the defined digital use cases and mapping to the existing operational excellence maturity model (shown in Fig.7), the stakeholders' needs are mapped with the business goals of the researched company (shown in Table 1).

BSC perspective	Business Goals	Stakeholder Needs (based on the step 2)		
		IT Benefits	**Risk Optimization**	**Resource Optimization**
Financial	1.Stakeholder value of business investments	higher revenue growth		
	3. Managed business risks		IT related risk optimization	
Customer	6. Customer-oriented service culture	customer satisfaction		
	7. Business service continuity and availability	IT service quality	warranty of IT services	
	10. Optimization of service delivery costs			IT related cost optimization
Processes (Operational Excellence)	11. Optimization of business process functionality	• faster detection of variations in core processes • end-to-end monitoring to improve core processes and services • identification of process (production) improvements		IT related cost optimization
	13. Managed business change programmes	• integration and standardization of core business processes • distribution of information on product functionalities (new product development) • distribution channel for product/services • modernization of sales channels • new models of decision-making	IT related risk optimization	IT related cost optimization
	14. Operational and staff productivity	more accurate knowledge management; employees can benefit from a better information retrieval		new models of IT resource management
Learning and Growth	16. Skilled and motivated people	educated and competent staff		
	17. Product and business innovation culture	culture of business innovation within the company		

Table 1. Mapping stakeholders needs with the business goals

Stakeholders' requirements include the benefit analysis of new technologies as well as the analysis of possible risks and costs. The benefits of digital technologies, selected from step 2, are mapped with the strategic goals within the perspective of operational excellence (BSC strategic map of the manufacturing company). Therefore, the new strategic plan of the company contains 3 goals for operational excellence: *11. Optimization of business process functionality, 13. Managed business change programs and 14. Operational and staff productivity* (shown in Table 1).

The perspective of the operational excellence supports the perspective of the customers and financial. For financial and customer perspective, the company has selected the following strategic goals: *1. Stakeholder value of business investments, 3. Managed business risks, 6. Customer-oriented service culture, 7. Business service continuity and availability, 10. Optimization of service delivery costs* (shown in Table 1).

Employees and their motivation are important for the operational excellence. Accordingly, the researched company has selected the following two goals for learning perspective: *16. Skilled and motivated people and 17. Product and business innovation culture* (shown in Table 1). The goals are taken from the COBIT 5 framework [18]. Each strategic goal can be measured by a defined metric.

According to the applied COBIT 5 framework, IT strategy and IT strategic goals should be defined. The results of aligning IT goals and business goals are shown in Table 2. The company has selected the following IT goals from the COBIT 5 framework out of 17 possible goals [18]:

- ✓ **1**. *Alignment of IT and business strategy*, which primarily supports the business goals 1, 6, 11 and 13 (arranged according to BSC perspectives);
- ✓ **4**. *Managed IT related business risks* that primarily supports the business goals 3, 7 and 13;
- ✓ **7.** *Delivery of IT services in line with business requirements*, which primarily supports the business goals 1, 6 and 11;
- ✓ **8**. *Adequate use of applications, information and technology solutions*, which primarily supports the business goals 10, 11, 14 and 16;
- ✓ **10**. *Security of information, processing infrastructure and applications*, which primarily supports the business goal 7;
- ✓ **12**. *Enablement and support of business processes by integrating applications and technology into business processes* that primarily supports the business goal 11;
- ✓ **16.** *Competent and motivated business and IT personnel* who primarily supports the business goals 14 and 16;
- ✓ **17**. *Knowledge, expertise and initiatives for business innovation* that primarily supports the business goal 17.

According to the results shown in Table 2, IT goals primarily support the business goals. *The connection between IT goals and the business goals for the case of operational excellence is marked by color and arrows.*

IT goals also have defined metrics that can be used to verify positive or negative correlations between the business and IT. The successful support of IT goals to the business goals and their positive correlation proves the fact that the company achieves the improvements in the area of the operational excellence as well as within other areas: employees, customers and financial. The paper does not describe metrics and does not examine correlations between business and IT goals. This could be step 4 in the proposed approach (measuring IT performance in the company).

Digital transformation is a very complex process and for many companies a very big challenge [20]. There are many models and approaches in the literature that can help managers and practitioners in digital transformation. Each of them has its advantages and disadvantages [21], [22]. The proposed model in this paper will certainly help companies in the process of digital transformation.

IT BSC perspective	IT GOALS	support ⇒	BUSINESS GOALS		
		Financial	Customer	Processes (Operational Excellence)	Learning and Growth
Financial/ Business contribution	1.Alignment of IT and business strategy	1. Stakeholder value of business investments ⇒	6. Customer-oriented service culture	11. Optimization of business process functionality 13. Managed business change programmes	
	4.Managed IT related business risks	3.Managed business risks	7. Business service continuity and availability ⇒	13. Managed business change programmes	
Users of IT services	7. Delivery of IT services in line with business requirements	1. Stakeholder value of business investments ⇒	6. Customer-oriented service culture	11. Optimization of business process functionality	
	8. Adequate use of applications, information and technology solutions ⇒		10. Optimization of service delivery costs	11. Optimization of business process functionality 14. Operational and staff productivity	16.Skilled and motivated people
IT Processes	10.Security of information, processing infrastructure and applications		7. Business service continuity and availability		
	12. Enablement and support of business by integrating applications and technology into business processes	⇒		11. Optimization of business process functionality	
Future orientation	16. Competent and motivated business and IT personnel	⇒		14. Operational and staff productivity	16.Skilled and motivated people
	17. Knowledge, expertise and initiatives for business innovation				17.Product and business innovation culture

Table 2. Mapping IT goals with the business goals

6.   Conclusion

The paper assesses and analyzes the operational excellence maturity in the manufacturing company using the Digital Capability Maturity Model (DCMM) and the corresponding Business Transformation Management Methodology (BTM[2]). Operational excellence is one of the six key areas within the framework for assessing the company's digital capabilities.

The main contribution of the research is in the proposed three-step approach to managing the operational excellence of the company and improving the level of digital capabilities of company.

The steps are described and related to the case of the examined manufacturing company and its assessed operational excellence (the following core business processes are examined: procurement, storage, production, distribution, support).

The maturity of operational excellence within the examined company shows quite low results (reactive 2). The results are obtained by evaluating the maturity of all nine management disciplines according to the BTM^2 (operational excellence maturity model, as-is situation, Step 1).

In the second step, digital use cases based on the new digital technologies are defined as well as the possibilities of their integration into the core business processes within the examined company (developing digital use cases and mapping to the existing operational excellence maturity model of the company).

In the third step, the company's new strategic plan is defined (based on the analyzed digital use cases and opportunities to improve the operational excellence). The company's new strategic plan is aligned to the IT strategic plan using the COBIT 5 framework, principle 1.

Each of the strategic goals within the new strategic plans has relevant metrics that can be used to examine the support of the IT strategy to the realization of the company's business strategy. In this research, the focus is not on the IT performance assessment. This could be the 4th step in the future research.

The proposed 3-step approach to managing a company's digital capability for the case of operational excellence can help managers in developing the digital business. However, the proposed approach can help managers for other case studies such as: innovation capability, transformation capability, IT excellence, customer focus, competent and motivated employees.

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